DOCUMENT RESUME

ED 219 571 CE 033 276

TITLE	Generating Quality Indicators for 20 of Utah's Vocational Education Programs, 1981-82. End of Project Report.
INSTITUTION	World-Wide Education and Research Inst., Salt Lake City, Utah.
SPONS AGENCY	Utah State Office of Education, Salt Lake City. Div. of Vocational Education.
PUB DATE	29 Jul 82
CONTRACT	82-0101
NOTE	22p.; For a related document see CE 033 277.
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Correlation; *Educational Quality; Employer Attitudes; *Graduate Surveys; Multiple Regression Analysis; Outcomes of Education; *Personnel Evaluation; *Program Effectiveness; Program Evaluation; Secondary Education; *Vocational Education
IDENTIFIERS	*Quality Indicators; *Utah

ABSTRACT

A study generated quality indicators for vocational education by collecting employer ratings of graduates of vocational education programs, categorizing these ratings by curriculum offerings, identifying the highest- and lowest-rated school programs, and identifying program differences. On-site evaluators suggested 11 indicators of educational quality. Since a correlation appeared to exist between employer ratings and scores of the on-site evaluators, multiple regression analysis was used on 19 variables. Ten indicators of quality of vocational education were identified empirically and given appropriate weightings for predicting quality scores (employer ratings). (Detailed results of the analysis are provided in table form.) Recommendations made were replication of the project, isolation of high and low scoring schools, program evaluation, and conduct of similar evaluative studies annually. (YLB)

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ED219571

END OF PROJECT REPORT

PROJECT TITLE: Generating Quality Indicators for 20 of Utah's Vocational Education Programs, 1981-82

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CONTRACT NUMBER: 82 0101

LOG NUMBER: 20011

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PROJECT PERIOD: From 1 September 1981 until 31 May 1982

TOTAL CONTRACT COSTS: $18,805.00

DATE FINAL REPORT SUBMITTED: 30 June 1982

SUPPLEMENTAL REPORT SUBMITTED: 19 July 1982

FINAL SUPPLEMENTAL REPORT SUBMITTED: 29 July 1982

CE 033 276

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END OF PROJECT REPORT

TITLE. Generating Quality Indicators for Vocational Education, 1981-82.

I. INTRODUCTION. It is more than just curiosity that makes the conscientious teacher or school administrator want to know how well he -- or his class, school, or school district -- is performing as compared to others. Parents, too, want to know how well their children are progressing and how good the schools are. Both groups want to know whether there must be greater efforts made, better programs adopted, newer equipment obtained, etc.

For the vocational education administrator, the need for measures of educational quality are essential. His task, in part, is to find out why some schools and some programs are better than others and then to advise practitioners regarding what they can do to get optimum results. Obviously, this means determining coparative goodness among the cases -- programs, schools, departments, districts, etc. -- are crucial.

II. BASIC STRATEGY OR RESEARCH DESIGN OF THIS PROJECT. This study attempted to first obtain some measures of educational attainment on the part of students who had completed various educational programs. To do this, by collecting employer ratings on all graduates of vocational education programs who were employed in relevant occupations. After such ratings were obtained on students, an attempt was made to categorize these ratings by curriculum offerings -- vocational education programs -- and to identify the half-dozen highest rated school programs and the half-dozen lowest rated school programs in each of some 20 different vocational programs. The strategy was then to make on-site visits to the high-rated schools as well as to the low-rated schools and attempt to identify program or other types of differences. These differences would be assumed to be the processes that would distinguish good from poor programs, and these could then be labeled "quality indicators."

III. MEASURES OF EDUCATIONAL QUALITY. The first critical item to settle in measuring institutional quality is: What is good? Definitions of goodness -- quality -- need not be universally accepted in order to be useful. The most practical approach toward educational quality is through making a distinction between "product" and "process" measures. In making this distinction, it is helpful to think of "product" measures as those quantifiable characteristics of students. Sometimes these must be inferred or approximated.

A. PRODUCT MEASURES USED IN THIS STUDY. From a review by the Ohio State University of all employer rating studies over the past two decades, some 16 measures were identified as the most frequently used. These measures, ranked in order of their frequency of use, were incorporated into the employer ratings of Utah vocational school graduates. A copy of the Employer Rating Form, together with its accompanying letter, is found in APPENDIX A. A summary of the data obtained from these employer ratings is presented in APPENDIX B.

B. PROCESS MEASURES USED IN THIS STUDY. To assist the on-site evaluators in their assessment of the programs, processes, equipment, etc. in the schools, and OBSERVER'S GUIDE AND CHECKLIST was prepared. A copy of the complete document is presented in APPENDIX C, together with a one-page checklist on which all data on a given program or school was to be summarized.

C. PRODUCT AND PROCESS COMPARISONS. A summary of the results of the overall vocational education ratings by employers is presented in Table I. From the table it can be seen that the employer ratings from the 1981 survey were combined with those obtained in 1982. It was felt necessary to combine the two in order to obtain sufficient numbers of responses for as many school districts as possible. The last three columns of Table I show the number of returns received for each district, the average rating obtained for each district and the rank order of the five highest and five lowest districts for which at least eight ratings had been obtained.

Figure 1 is a chart illustrating the rankings of the seven highest districts in overall vocational education according to the ratings of employers.

Table II presents the overall summary of employer ratings by school district, as well as a ranking of these, and also a summary of the on-site evaluator assessment of each district with its appropriate ranking. From the table it can be seen that of 1106 employer returns the average rating was 51, which is somewhat better than "GOOD" and tending toward "VERY GOOD." This rating in itself is an interesting conclusion to be drawn from the study. The table shows an overall average assessment of the on-site evaluators was 45.

Figure 2 is a graph illustrating the seven highest districts according to the assessments of the on-site evaluators. Notice that five of the seven district in Figures 1 and 2 and the same: San Juan, Washington, Wasatch, Carbon, and Cache. This would indicate a rather strong correlation between the employer ratings and the on-site evaluator assessments. This, however, is not the case as will be demonstrated the the section on Correlation and Multiple Regression Analysis.

FIGURE 1. HIGH DISTRICTS EMPLOYER RATINGS, 1982 & 81

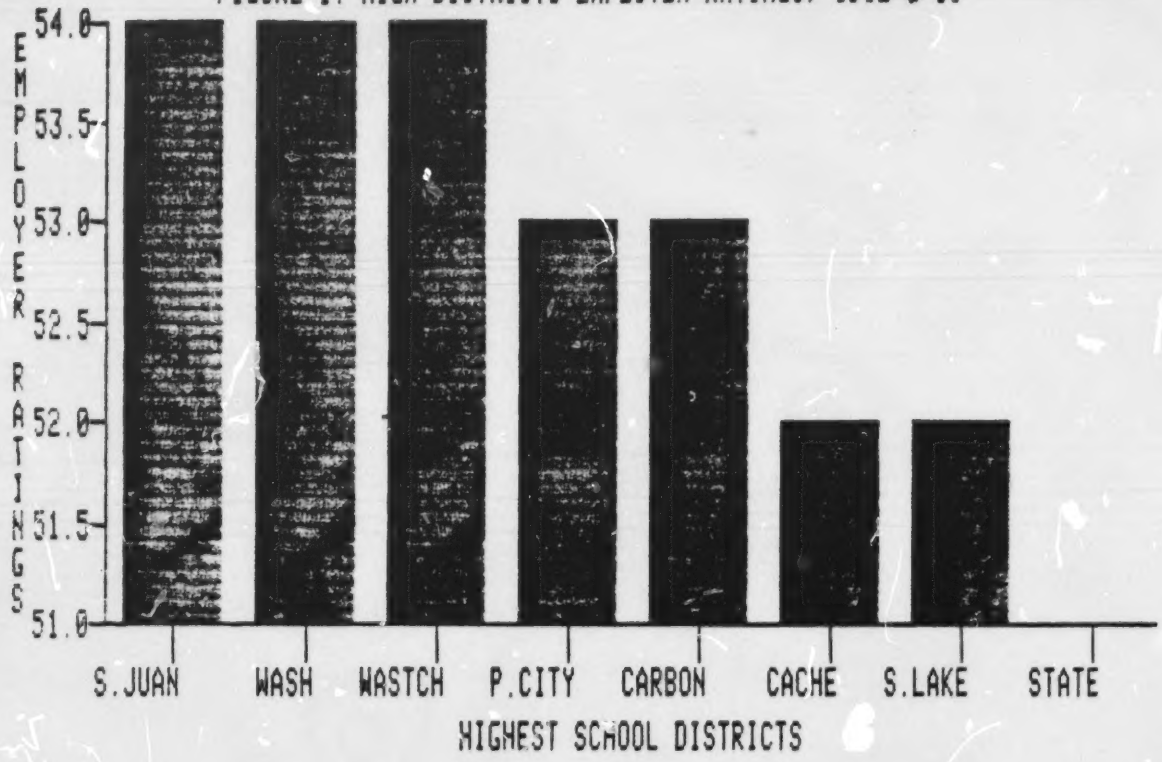


FIGURE 2. HIGH DISTRICTS BY ON-SITE EVALUATORS, 1982

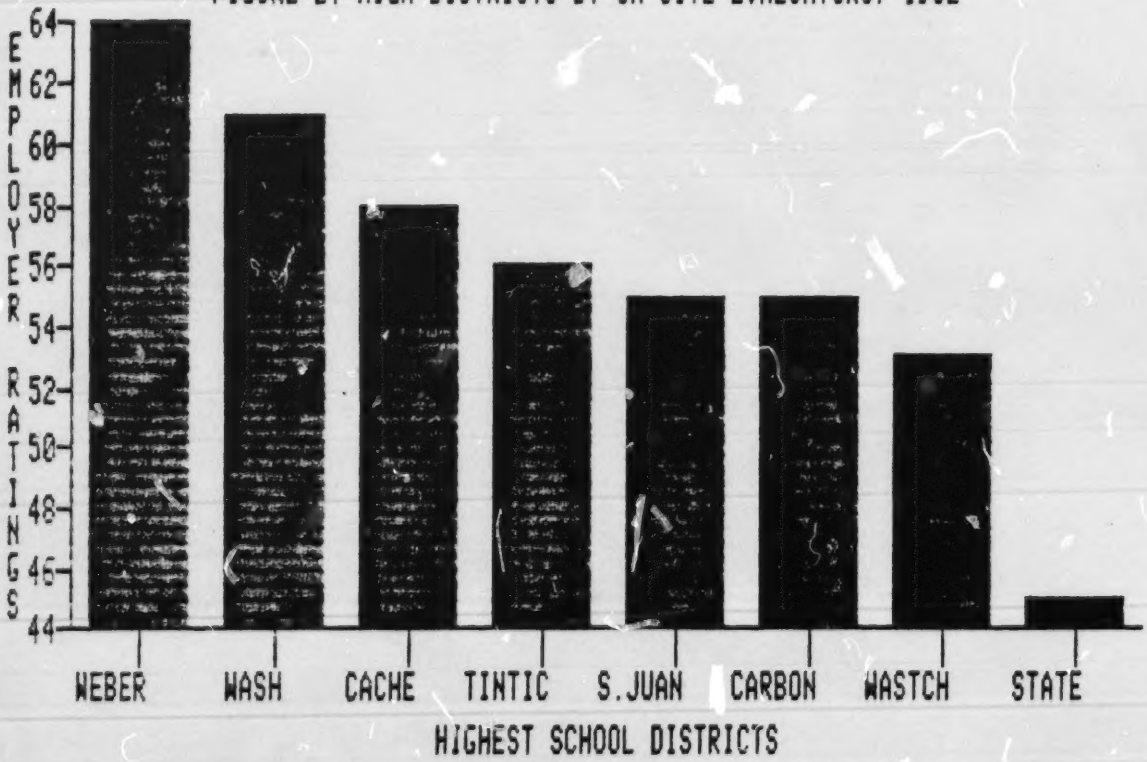
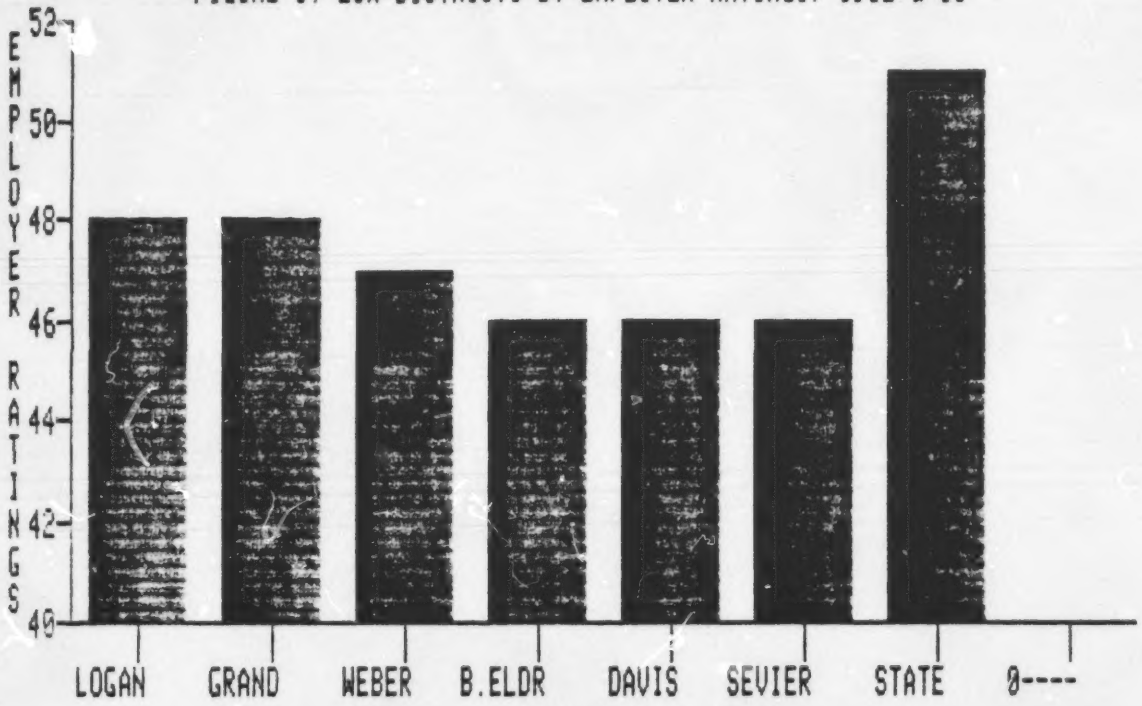


Figure 3 illustrates the six lowest districts

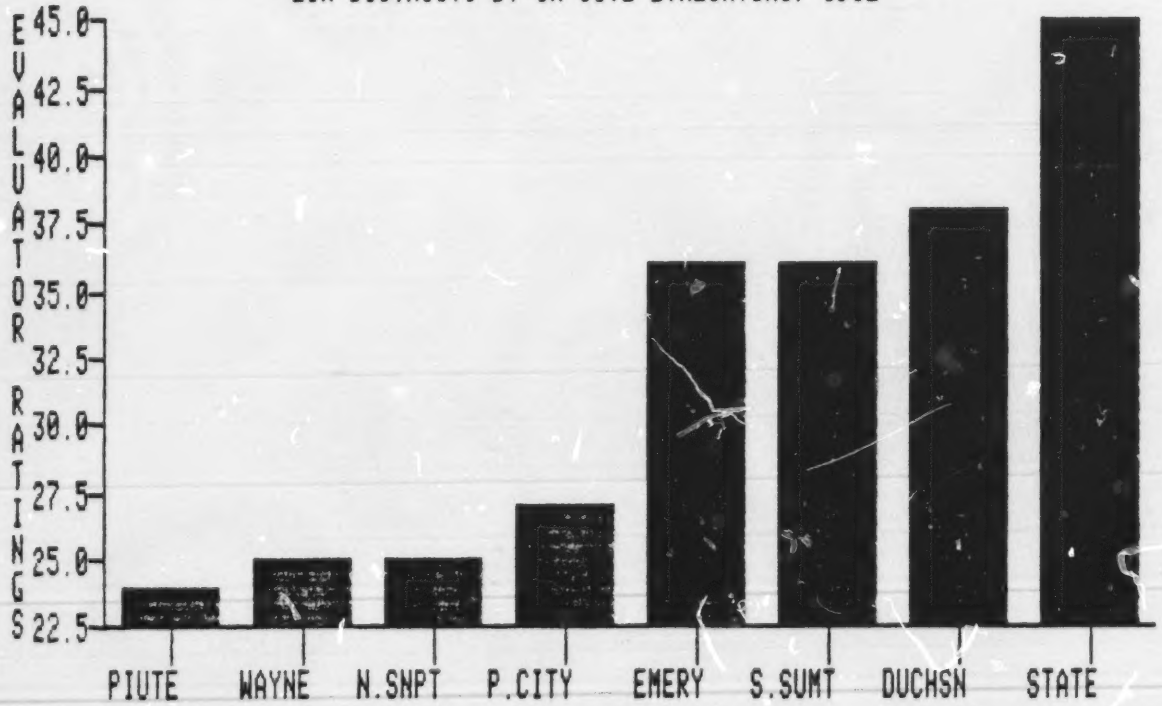
according to employer ratings of vocaticnal education graduates. And, Figure 4 shows graphically the six lowest districts according to the on-site evaluator assessments. Note that there is no common district in Figures 3 and 4.

FIGURE 3. LOW DISTRICTS BY EMPLOYER RATINGS, 1982 & 81



LOWEST SCHOOL DISTRICTS; TOTAL VOED

LOW DISTRICTS BY ON-SITE EVALUATORS, 1982



LOWEST SCHOOL DISTRICTS: OVERALL VOED

PART IV. INDICATORS OF EDUCATIONAL QUALITY THAT WERE SUGGESTED BY THE ON-SITE EVALUATORS

In terms of project timelines, it was decided to conduct a widespread evaluation of the vocational education programs in all Utah high schools during the spring of 1982. A team of five highly trained educators with wide experience in evaluation of educational programs was employed to conduct the assessment program. Each evaluator was asked to assess the total vocational program in each school and to be alert to possible indicators of educational quality. The following suggested indicators were gleaned from the various evaluator reports:

INDICATOR #1. A STRONG JOB PLACEMENT PROGRAM.

[Carbon and Grand Examples]. Carbon and Grand High Schools each had a vocational counselor who was employed on a 50/50 basis with the Utah Job Service and their respective high schools. This enabled the counselors to have a rather thorough knowledge of the Utah job market which they advantageously applied in the schools.

[Davis District Example]. The high school job placement and vocational directors meet monthly with the District Vocational Education Director for the reviewing of local job prospects. Individual teachers from different programs also meet regularly with the District Director to discuss needs and review curriculum improvement possibilities.

[Bountiful High School Example]. The job placement director takes a personal initiative in soliciting jobs through personal contact with prospective employers local businesses, and community groups.

INDICATOR #2. AN EFFECTIVE GUIDANCE PROGRAM.

[Viewmont Example]. One teacher has prepared a videotape presentation of the vocational program offered at Viewmont High School. It is an effective and innovative presentation. In addition, students are exposed to career information during a 3-day seminar prepared by the same teacher.

[San Juan Example]. Counselors specialize in vocational education counseling with Native American students and coordinate their efforts in the evaluation and guidance of students.

[Woods Cross, Clearfield, and Layton Example]. Counselors make extensive use of the GIS program. It is an integral part of the regular school program. In fact, the guidance program is built around the GIS. Clearfield's program is especially noteworthy since a paraprofessional is used to operate the GIS, thus relieving the teacher to further develop the career

center.

[Weber, Bountiful, Bonneville, Viewmont, and Skyview Example]. In these high schools the vocational education teachers indicated that they had an exceptional rapport with the job placement and career guidance counselors. This apparently reflects a significant personal effort on the part of the counselors and job placement directors.

INDICATOR #3. ADEQUATE BUILDING FACILITIES.

[Several Examples and Contrasts]. Many schools were mentioned because of plant deficiencies or outstanding accomodations. The following schools were cited because the facilities were adequate, clean, spacious, well lighted and ventilated, and well equipped: Bonneville (auto and wood); Weber (all departments except graphic arts); Layton (business); Carbon (use of College of Eastern Utah's facilities); San Juan (career center); Viewmont (welding); and Skyview (career guidance, electronics, business, and auto).

INDICATOR #4. CONTINUAL AND PRACTICAL USE OF OBJECTIVES.

[Weber Example]. The Weber District exhibited the fact that a concentrated effort was made to have every teacher write and follow a scope and sequence. Each teacher questioned seemed to be familiar with specific course objectives and to use them in his teaching.

INDICATOR #5. FOLLOW-UP PROGRAMS OF GRADUATES BEYOND STATE REQUIREMENTS.

[Roy Example]. Roy High School did an intensive follow up study in addition to that conducted by the State.

INDICATOR #6. CONTINUING AND EFFECTIVE EFFORTS TO IMPROVE THE CURRICULUM.

[Weber, Davis, and Carbon Examples]. Weber District has made a concerted effort to unify and improve the curriculum. All job placement directors, the district vocational directors, and teachers form various departments meet regularly and visit one another's schools. This provides opportunities to share curriculum ideas.

Davis District conducts monthly meetings to coordinate programs and to discuss problems, update curriculum areas, etc.

Carbon High School has an unusual mining class that actually used the mining industry to train the students.

INDICATOR #7. SPECIAL PROVISIONS AND IN INTEREST IN ATYPICAL STUDENTS.

[Viewmont, Bountiful, and Logan Examples]. These schools expressed special concern for Special Education students and had good communication with the special education teachers in their schools. Some hold regular meetings.

INDICATOR #8. SYSTEMATIC ASSESSMENT AND MONITORING OF PUPIL GROWTH.

[San Juan Example]. San Juan High School has an extensive program to teach self-esteem, employer expectations, and on-the-job skills. The Zenos Black Career Center administers to each entering student a complete needs assessment evaluation. Academic aptitudes are measured, as well as achievement, interests, and grades. Students may use the COIN system -- a computerized system with vocational information that is updated annually with new discs. All students, but especially Native American students, are well evaluated and an alternative school is provided to remediate and carry students with different learning styles along to graduation.

INDICATOR #9. TEACHER ATTITUDES AND INSERVICE PROGRAMS BASED UPON TEACHER/DISTRICT/PUPIL NEEDS.

[Davis and Grand Examples]. Some districts recognize that student feelings of value are directly linked to teacher attitudes and teaching methods. Attempts to improve teacher attitudes and methods have taken the form of inservice programs for professional development. Davis District provides an abundance of inservice programs and provides ways for teachers to coordinate the offerings of programs they desire. Through the Teacher Center in Moab -- now supported solely with district funds -- teachers can obtain special funds to visit or bring in specialists, as well as to develop curriculum, acquire new materials, and participate in inservice development programs.

INDICATOR #10. ADMIMISTRATIVE LEADERSHIP AND PROGRAM SUPPORT.

Good programs in vocational education call for strong administrative support and encouragement of teacher efforts. Wide variations of administrative support and leadership were evident among the various schools visited.

INDICATOR #11. CLOSE COMMUNITY CONTACT. Close contact with the private and public sectors appears to be reflected in the quality of output and expectations.

[Weber Example]. Weber School District has

implemented many programs in the various high schools that involved local industry and trained students through workshops offered in the high schools for employment within that industry.

[Layton Example]. Layton High School has a strong business program, SCOBE, which provides a simulated office experience. Students work in the community for a grade only. They receive no money except for after school hours.

[Weber and Bonneville, Logan and Skyview, and Carbon Examples]. Each of thes high schools make use of nearby colleges to supplement their programs. This is alse true in the Uintah and Duchesne area and in the Sevier area. Some evaluators observed how poor the vocational programs would be in some of these areas if the nearby college facilities were not used extensively.

PART V. CORRELATIONS AND MULTITPLE REGRESSION ANALYSIS

A number of questions were raised about searching out possible indicators of educational quality. First, it appeared that a correlation existed between employer ratings and the scores of the on-site evaluators. This would seem apparent with five of the districts being common to the seven highest districts identified by both the employers and on-site evaluators.

Second, if a correlation does exist, then it would be advantageous to know which of some 19 elements of the on-site evaluator ratings were significant. These would be the quality indicators being sought and they could thus be identified empirically.

Third, it would be advantageous to know just exactly how significant each of the indicators are. That is, just how much weight each indicator would have in predicting the quality of a school's vocational education program, as far as employer ratings -- product measures -- were concerned.

The remainder of this section provides the detailed answers to these questions. Table II presents the detailed scores of the on-site evaluators on each of the following process dimensions. The letters in parentheses indicate the abbreviated titles used in Table II.

1. Needs Assessments (NEED)
2. Guidance Programs (GUID)
3. Placement Activities (PLAC)
4. Follow-up Procedures (FLUP)
5. Community Relationships (COMM)

6. Evaluation Activities (EVAL)
7. Teacher Selection Procedures (TSEL)
8. Teacher Evaluation Methods (TEVL)
9. Teacher Inservice Programs (INSR)
10. Building Facilities (BLDG)
11. Vocational Classrooms (VCRU)
12. Operation & Maintenance (OPER)
13. Tools & Equipment (TOOL)
14. Use of Objectives (OBJV)
15. Nurturing Pupil Growth (PUPL)
16. Special Pupils (SPEC)
17. Curriculum Development (CURR)
18. Program Innovations (INNO)
19. Composite of All Scores (COMP)
*20. Employer Ratings (EMPL)

* Dependent Variable

As the following pages of computer printout reveal, the multiple regression formula with significant weightings for predicting employer ratings for a given school is:

EMP = 50 + .49FLUP + .21GUID - .36EVAL - .81BLDG
+ .51VCRU + .55TOOL - .64OBJV + .44PUPL
- .43CPER + .15INSR

The foregoing formula identifies the ten significant indicators of educational quality, as defined by this study, and gives the relative weightings of each one. Notice that some, as defined herein, have a negative influence.

TABLE II. DETAILED SCORES OF ON-SITE EVALUATIONS, 1982

No.	School District NAME	1 NEED	2 GUID	3 PLAC	4 FLUP	5 COMM	6 EVAL	7 TSEL	8 TEVL	9 INSR	10 BLDG	11 VCRU	12 OPER	13 TOOL	14 OBJV	15 PUPL	16 SPEC	17 CURR	18 IMMD	19 COMP	20 EMPL
01	Alpine	9	10	9	8	11	9	8	8	9	9	7	9	10	10	10	8	9	10	42	48
02	Beaver	8	8	4	8	14	8	12	12	8	12	12	12	12	12	14	8	12	12	48	49
03	Box Elder	4	12	14	4	12	12	12	8	10	8	8	12	8	12	12	10	12	8	44	46
04	Cache	12	12	8	8	12	12	8	14	12	14	14	14	14	12	12	8	14	12	58	50
05	Carbon	12	14	14	8	12	8	8	8	4	14	14	12	14	12	12	8	14	14	55	52
06	Davis	12	11	12	9	11	12	11	13	11	12	11	12	12	12	11	11	12	12	52	48
07	Duchesne	4	7	5	3	11	9	12	15	4	8	11	11	11	8	9	9	9	5	38	50
08	Emery	4	6	2	8	12	6	8	10	4	10	10	10	10	8	8	8	10	10	36	50
09	Grand	14	8	12	12	12	8	8	12	12	12	12	12	12	12	8	8	8	12	50	48
10	Granite	7	11	11	11	8	8	11	11	11	13	8	11	13	13	9	5	8	7	44	50
11	Iron	12	2	6	10	14	12	10	6	10	2	2	12	6	12	14	10	14	14	44	50
12	Jordan	13	10	13	10	13	12	13	10	11	9	11	9	11	13	11	8	13	13	52	50
13	Millard	9	11	3	7	14	8	15	13	13	7	9	10	10	12	14	12	9	10	48	55
14	Morgan	8	8	12	12	14	8	8	8	8	12	8	8	8	8	8	14	8	12	44	50
15	Nebo	12	12	9	9	12	9	11	9	12	12	11	13	15	11	11	9	13	15	52	51
16	N.Sanpete	8	4	8	8	8	8	8	8	4	8	0	4	8	8	8	8	4	4	25	50
17	N.Summit	8	8	8	8	8	12	8	8	8	12	12	8	12	12	12	4	8	8	41	50
18	Park City	8	8	4	12	4	8	8	8	8	8	8	4	4	8	8	8	8	8	27	53
19	San Juan	14	14	10	8	12	12	10	12	4	12	14	12	12	14	14	12	14	14	55	50
20	Sevier	10	11	9	7	12	13	11	7	7	7	7	9	6	13	15	9	10	10	42	47
21	S.Sanpete	10	10	8	8	12	10	8	8	10	14	14	14	12	10	10	8	8	8	45	49
22	S.Summit	12	8	8	8	8	12	8	8	8	4	4	8	8	12	12	8	4	8	36	51
23	Uintah	4	10	2	12	10	12	12	14	4	12	14	8	12	14	10	8	14	6	44	50
24	Wasatch	12	12	8	16	14	12	8	8	8	12	12	12	12	12	14	12	12	12	53	55
25	Washington	10	14	12	10	12	12	14	14	14	12	14	12	12	14	14	8	14	14	61	53
26	Wayne	8	0	0	8	8	4	8	8	4	4	8	8	4	4	4	8	8	4	25	52
27	Weber	14	14	14	12	14	14	8	14	12	14	14	14	14	14	12	12	14	12	64	49
28	Salt Lake	11	12	9	7	8	8	11	8	9	11	11	9	12	9	8	6	10	9	42	52
29	Ogden	12	13	12	11	12	12	11	9	9	12	11	11	11	13	12	8	12	12	52	48
30	Logan	4	4	8	8	12	8	12	12	8	12	12	12	12	12	12	12	12	12	47	50

FINAL STEP

NUMBER OF CASES	30
TOTAL # OF VARIABLES	20
F TO ENTER	1.5
F TO REMOVE	1.5

NUMBER OF PREDICTOR VARIABLES ENTERED	10
MULTIPLE R SQUARED	.729548453
STD ERROR OF EST	1.33383145

ANALYSIS OF VARIANCE

REGRESSION

DEGRESS OF FREEDOM 1	10
SUM OF SQUARES	91.0476492
MEAN SQUARE	9.10476492

RESIDUAL

DEGREES OF FREEDOM 2	19
SUM OF SQUARES	33.7523539
MEAN SQUARE	1.77643968
F RATIO	5.12528797

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2	2	GUID	.214715759
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4	10	BLDG	-.813106667
5	11	VCRU	.507127469
6	13	TOOL	.550956674
7	14	OBJV	-.638809069
8	15	PUPL	.441316109
9	12	OPER	-.42931721
10	9	INSR	.150759193
		CONSTANT	50.0055777

SUMMARY TABLE

# OF PRED VARIABLES	VAR ID#	NAME	MULT R SQUARED
1	4	FLUP	.061734972
2	2	GUID	.0619521352
3	6	EVAL	.208099786
4	10	BLDG	.273969197
5	11	VCRU	.457658202
6	13	TOOL	.519180278
7	14	OBJV	.555870078
8	15	PUPL	.640496469
9	12	OPER	.700183492
10	9	INSR	.729548453

LIST OF CORRELATIONS (ROW, COLUMN)

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(2,3)	.62832735	(2,4)	.161736509	(2,5)	.174722399
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(3,18)	.55955266	(3,19)	.617896199	(3,20)	-.274578378
(4,4)	1	(4,5)	.159415763	(4,6)	.215713596
(4,7)	-.257436117	(4,8)	-.0613666338	(4,9)	.228347709
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(4,13)	.098900074	(4,14)	.288356186	(4,15)	.0820071596
(4,16)	.212960838	(4,17)	.167144269	(4,18)	.275504419
(4,19)	.262744473	(4,20)	.248465433	(5,5)	1
(5,6)	.232752748	(5,7)	.255549246	(5,8)	.154388313
(5,9)	.274602773	(5,10)	.213309684	(5,11)	.201330155
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(5,15)	.597516183	(5,16)	.623827765	(5,17)	.474500884
(5,18)	.574137424	(5,19)	.59006152	(5,20)	-.0182829496
(6,6)	1	(6,7)	.114263261	(6,8)	.194086383
(6,9)	.364387157	(6,10)	.220330502	(6,11)	.239875555
(6,12)	.332588746	(6,13)	.292645935	(6,14)	.767450693
(6,15)	.607978541	(6,16)	.141959017	(6,17)	.459824932
(6,18)	.305072986	(6,19)	.57614492	(6,20)	-.274197233
(7,7)	1	(7,8)	.418056411	(7,9)	.344857059
(7,10)	-.0369767826	(7,11)	.118598149	(7,12)	.132305608
(7,13)	.130968159	(7,14)	.390778945	(7,15)	.354348867
(7,16)	.06[illegible]766481	(7,17)	.29108275	(7,18)	.157439597
(7,19)	.276380489	(7,20)	.0701210234	(8,8)	1
(8,9)	.31013346	(8,10)	.433837374	(8,11)	.596012888
(8,12)	.429334566	(8,13)	.509490287	(8,14)	.392496284
(8,15)	.0967503282	(8,16)	.102249096	(8,17)	.393923014
(8,18)	.141009751	(8,19)	.499255389	(8,20)	.0557768632
(9,9)	1	(9,10)	.286375888	(9,11)	.228230883
(9,12)	.463020998	(9,13)	.366943539	(9,14)	.513222822
(9,15)	.320301462	(9,16)	.0632888513	(9,17)	.283697529
(9,18)	.483025073	(9,19)	.593473642	(9,20)	.0319452766
(10,10)	1	(10,11)	.88449545	(10,12)	.620335488
(10,13)	.883108045	(10,14)	.442403121	(10,15)	.128725176
(10,16)	.0374865661	(10,17)	.501017076	(10,18)	.471744444
(10,19)	.722754386	(10,20)	-.0557750762	(11,11)	1
(11,12)	.63[illegible]00722	(11,13)	.830725291	(11,14)	.433771401
(11,15)	.159506838	(11,16)	.0123159783	(11,17)	.603610096
(11,18)	.435485204	(11,19)	.712447862	(11,20)	.0958946658
(12,12)	1	(12,13)	.755493036	(12,14)	.467259049

(12,15)	.433698877	(12,16)	.185414512	(12,17)	.641696313
(12,18)	.55408177	(12,19)	.781992019	(12,20)	-.178136165
(13,13)	1	(13,14)	.538345407	(13,15)	.275503946
(13,16)	-.0292883291	(13,17)	.581587957	(13,18)	.534433589
(13,19)	.810902068	(13,20)	8.97954086E-03	(14,14)	1
(14,15)	.690876754	(14,16)	.04587957	(14,17)	.577672482
(14,18)	.549607102	(14,19)	.787257895	(14,20)	-.165781006
(15,15)	1	(15,16)	.232110188	(15,17)	.511585536
(15,18)	.56813547	(15,19)	.572884394	(15,20)	.0416488208
(16,16)	1	(16,17)	.204461251	(16,18)	.327286823
(16,19)	.276673367	(16,20)	.0710877564	(17,17)	1
(17,18)	.697589688	(17,19)	.760678081	(17,20)	2.9445425E-03
(18,18)	1	(18,19)	.784876574	(18,20)	.07488o8232
(19,19)	1	(19,20)	-.0402097275	(20,20)	1

LIST OF MEANS AND STANDARD DEVIATIONS

VAR ID#	VARIABLE NAME	MEANS	STANDARD DEVIATIONS
1	NEED	9.7	3.33373561
2	GUID	9.66666667	3.88927201
3	PLAC	8.4	3.83810298
4	FLUP	9.06666667	2.44855106
5	COMM	11.5333333	2.90935866
6	EVAL	10	2.5461262
7	TSEL	10	2.13347701
8	TEVL	10.2333333	2.80095395
9	INSR	8.66666667	3.12203883
10	BLDG	10.2	3.93393723
11	VCRU	10.3666667	3.9521564
12	OPER	10.4666667	2.68756182
13	TOOL	10.5	3.70228262
14	OBJV	11.4	2.64705432
15	PUPL	11.1333333	2.87358161
16	SPEC	8.96666667	2.38505886
17	CURR	10.9	3.38709519
18	INNO	10.3666667	3.28511096
19	COMP	45.5333334	9.59070433
20	EMPL	50.2	2.07447545

OB #	CALCULATED	ACTUAL	RESIDUAL
1	50.1668088	48	-2.16680877
2	51.2230403	49	-2.2230403
3	47.2254617	46	-1.22546166
4	48.7588381	50	1.24114193
5	51.5523751	52	.447624937
6	48.676962	48	-.676962003
7	49.6657887	50	.334211275
8	50.2956882	50	-.295688212
9	50.2742023	48	-2.2742023
10	48.2140913	50	1.78590876
11	49.5561845	50	.443815544
12	51.4944157	50	-1.49441566
13	53.5445598	55	1.45544021
14	49.7113341	50	.288665935
15	51.9723928	51	-.972392827
16	49.2806559	50	.719344139
17	49.7515861	50	.248413965
18	52.4772029	53	.522797123
19	49.6403624	50	.359637618
20	47.8744239	47	-.874423921
21	48.4013895	49	.598610461
22	49.995593	51	1.00440728
23	50.4106395	50	-.410639465
24	54.6157523	55	.384247124
25	52.3033497	53	.696650311
26	51.9263743	52	.0736257285
27	48.4763147	49	.523685321
28	51.7178282	52	.282171831
29	48.1974516	48	-.197451621
30	48.5969128	50	1.40108718

PART VI. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

From the experience of this project, it seems appropriate to summarize the meanings of some of the data gathered, review some of the conclusions that have emerged, and make some recommendations as to next steps that could be advantageously made.

A. SUMMARY

1. While this study was well-intentioned and quite ambitious, it proved to be somewhat unrealistic in terms of the inertia of the system, the time required to contact employers and obtain their ratings, and the mechanics of getting dependable data on separate vocational areas.

2. This project has been a significant effort to obtain indicators of educational quality of vocational education. However, it must be viewed as a possible prototype and yet recognized as quite tentative. It must be kept in mind that ten school districts had to be eliminated from the final analysis because of an inadequate number of employer returns received or because of an inability of the project to get independent evaluators on-site. Because of time constraints, more than 500 follow-up letters were yet to be sent out when the study had to be concluded.

3. It is quite possible that with addition employer ratings yet to be received that several more districts can be included in the analysis and that the employer ratings will change somewhat the findings of this study. In any event, it was believed that carrying this study to a conclusion would simplify the conduct of a subsequent, more comprehensive, and more precise study.

B. CONCLUSIONS

1. Most responding employers in this study feel that students are quite good. Considering all 15 dimensions of technical competence, personality, and human relations skills, employers rate vocational education graduates from secondary schools who are employed in fields related to their training as somewhere between "GOOD" (a full step above FAIR or average) and "VERY GOOD."

2. The on-site evaluators were highly trained and expeienced in assessment of education and each had considerable experience as teachers or specialists in the public schools. Only one had a background speciality in vocational education. As a result of their on-site evaluations, these people were asked to identify what they thought were "indicators or educational quality for vocational education." They defined some 11 such indicators and provided examples to document and illustrate their definitions. These indicators, found in Part IV of this report may provide some valuable insights or clues for further research efforts that attempt to empirically

identify such indicators.

3. Using the statistical technique of Multiple Regressional Analysis on some 19 variables -- process measures --, a series of 10 indicators of quality of vocational education were identified empirically and given appropriate weightings for predicting quality scores (Employer Ratings). Detailed results of the Analysis may be found in Part V and in the Appendix.

C. RECOMMENDATIONS

1. Using the data and conclusions of this project as merely tentative, it would be advantageous to replicate this study during the spring and summer of 1983 and use the cumulative data of three years for executing a Multiple Regression Analysis.

2. During the autumn of 1983 -- assuming sufficient returns become available to get reliable and valid information on some 20 vocational education areas --, it would be advantageous to isolate half-dozen high and half-dozen low scoring schools in each of the 20 areas and to make on-site visits in attempt to identify QUALITY INDICATORS. This would be consistent with the original research design of this project.

3. An extensive amount of excellent evaluative data has been generated by this project through the employer ratings and through the scores and field notes of the on-site evaluators. The process of reviewing data and field notes, checking tentative conclusions, making new observations, and verifying findings would be a valuable experience for all of the specialists and administrators of the vocational education staff of the Utah State Office of Education.

4. An overall evaluative study similar to this project should become an annual effort of the Utah State Office of Vocational Education. Not only can it produce valuable research findings, it can provide excellent opportunities for the inservice professional development of staff, and perhaps more importantly, it can improve educational opportunities within the schools and enhance positive relationships between U.S.O.E. and school district personnel.